

In the Claims:

1. (Currently Amended) A surgical reamer for cutting a bone socket, comprising:

- a) a hollow dome comprising:
 - i) a dome portion of a hemisphere extending from an apex to a lower edge, the dome portion being rotatable about a longitudinal axis that is perpendicular to a theoretical equatorial plane of the hemisphere and that passes through the apex of the dome portion, wherein the dome portion has an outer surface presenting multiple cutting sites comprising apertures suitable for passing debris into a cavity defined by an inner surface of the dome where the debris may accumulate;
 - ii) at least two opposed first edge portions of the lower edge residing on the theoretical equatorial plane, wherein a second theoretical plane perpendicular to the equatorial plane intersects ~~the dome portion along~~ the longitudinal axis and along the two of the at least two first edge portions residing on the theoretical equatorial plane; and
 - iii) at least two continuously curved second edge portions of the lower edge spaced from the theoretical equatorial plane toward the apex, wherein at least one ~~of the~~ second edge portion ~~portions~~ resides on opposite sides of the second theoretical plane ~~with at least two of the second edge portions being~~ disposed between and connected to two of the first edge portions; and

- b) an alignment structure connected to the inside surface of the dome portion for detachably connecting the hollow dome to a drive mechanism.

2. (Withdrawn and Previously Presented) The reamer of claim 1 wherein the at least two opposed first edge portions are curved portions.

3. (Withdrawn and Previously Presented) The reamer of claim 2 wherein the at least two first curved portions intersect the theoretical equatorial plane and describe a diameter of the hollow dome.

4. (Previously Presented) The reamer of claim 1 wherein the second curved portions are opposed to one another on opposite sides of the second theoretical plane.

5. (Withdrawn and Previously Presented) The reamer of claim 1 wherein the at least two second curved portions are concave relative to the rotational axis.

6. (Previously Presented) The reamer of claim 1 wherein the at least two second curved portions are convex relative to the rotational axis.

7. (Withdrawn and Previously Presented) The reamer of claim 1 wherein the at least two second curved portions are circular or parabolic.

8. (Withdrawn and Currently Amended) The reamer of claim 1 wherein there are a plurality of first curved portions and a plurality of second curved portions, and wherein the number of first curved portions equals the number of second curved portions.

9. (Withdrawn) The reamer of claim 8 wherein the number of first curved portions is 2 or 4.

10. (Withdrawn and Previously Presented) The reamer of claim 1 wherein there are a pair of first curved portions that are separated by a pair of second curved portions, together describing a cruciform shape.

11. to 16. (Cancelled)

17. (Withdrawn and Previously Presented) The reamer of claim 1 wherein a dynamic profile area of the reamer is circular.

18. to 25. (Cancelled)

26. (Previously Presented) The reamer of claim 1 wherein the alignment structure comprises:

- a) a first bar having a first length extending to opposed terminal ends connected to the inner surface of the dome portion at locations along the second theoretical plane; and
- b) a cross-member having opposed free ends and being of a lesser length than the bar, the cross-member intersecting the bar at the axis to define a cruciform shape for receipt by a bayonet catch on a holder,

while allowing removal of debris adjacent the free ends of the cross-member.

27. to 32. (Cancelled)

33. (Currently Amended) A surgical reaming assembly comprising:

- a) a hollow dome comprising:
 - i) a dome portion of a hemisphere extending from an apex to a lower edge, the dome portion being rotatable about a longitudinal axis that is perpendicular to a theoretical equatorial plane of the hemisphere and that passes through the apex of the dome portion, wherein the dome portion has an outer surface presenting multiple cutting sites comprising apertures suitable for passing debris into a cavity defined by an inner surface of the dome where the debris may accumulate;
 - ii) at least two opposed first edge portions of the lower edge residing on the theoretical equatorial plane, wherein a second theoretical plane perpendicular to the equatorial plane intersects ~~the dome portion along~~ the longitudinal axis and ~~along the two of the at least two~~ first edge portions residing on the theoretical equatorial plane; and
 - iii) at least two continuously curved second edge portions of the lower edge spaced from the theoretical equatorial plane toward the apex, wherein at least one ~~of the~~ second edge portion ~~portions~~ resides on opposite sides of the second

theoretical plane ~~with at least two of the second edge portions being~~ disposed between and connected to two of the first edge portions; and[[;]]

- b) an alignment structure for detachably connecting the hollow dome to a drive mechanism, wherein the alignment structure comprises:
 - i) a first bar having a first length extending to opposed first ends connected to the inner surface of the dome portion at locations along the second theoretical plane;
 - ii) a second bar bisecting the first bar, wherein the second bar has a second length extending to opposed second ends that reside intermediate the theoretical equatorial plane and the apex of the dome portion and that are spaced inwardly from the second edge portions of the dome; and
 - iii) wherein the first length of the first bar is greater than the second length of the second bar; and
- c) a holder that is detachably connectable to the alignment structure for transmitting rotational torque to the hollow dome.

34. (Withdrawn and Previously Presented) The assembly of claim 33 wherein the hollow dome and the alignment structure comprise an acetabular reamer that is detachably connectable to the holder by a bayonet catch.

35. to 38. (Cancelled)

39. (Previously Presented) The reamer of claim 1 wherein the second theoretical plane bisects the dome portion along the first edge portions residing on the theoretical equatorial plane.

40. (Previously Presented) The reamer of claim 1 wherein the alignment structure comprises:

- a) a first bar having a first length extending to opposed first ends connected to the inner surface of the dome portion at locations along the second theoretical plane;
- b) a second bar intersecting the first bar, wherein the second bar has a second length extending to opposed second ends that reside intermediate the theoretical equatorial plane and the apex of the dome portion and that are spaced inwardly from the second edge portions of the dome; and
- c) wherein the first length of the first bar is greater than the second length of the second bar.

41. (Previously Presented) The reamer of claim 1 wherein the first bar is aligned along the second theoretical plane and intersects the dome portion along the longitudinal axis and along the first edge portions residing on the theoretical equatorial plane.

42. (Previously Presented) The reamer of claim 1 wherein the first bar is aligned along the second theoretical plane, intersecting the longitudinal axis and bisecting the first edge portions.

43. (Previously Presented) The reamer of claim 1 wherein second bar intersects the first bar at a right angle.
44. (Previously Presented) The reamer of claim 1 wherein the opposed ends of the first bar are connected to the inner surface of the dome portion at locations along the second theoretical plane and spaced from the theoretical equatorial plane toward the apex.
45. (Previously Presented) The reamer of claim 1 wherein the second bar bisects the first bar.
46. (New) A surgical reaming assembly comprising:
- a) a hollow dome comprising:
 - i) a dome portion of a hemisphere extending from an apex to a lower edge, the dome portion being rotatable about a longitudinal axis that is perpendicular to a theoretical equatorial plane of the hemisphere and that passes through the apex of the dome portion, wherein the dome portion has an outer surface presenting multiple cutting sites comprising apertures suitable for passing debris into a cavity defined by an inner surface of the dome where the debris may accumulate;
 - ii) at least two opposed first edge portions of the lower edge residing on the theoretical equatorial plane, wherein a second theoretical plane perpendicular to the equatorial plane intersects the longitudinal axis and two of the at least two first edge portions residing on the theoretical equatorial plane; and

- iii) at least two continuously curved second edge portions of the lower edge spaced from the theoretical equatorial plane toward the apex, wherein at least one second edge portion resides on opposite sides of the second theoretical plane disposed between and connected to two of the first edge portions; and
- b) an alignment structure for detachably connecting the hollow dome to a drive mechanism, wherein the alignment structure comprises:
 - i) a first bar having a first length extending to opposed first ends connected to the inner surface of the dome portion at locations along the second theoretical plane;
 - ii) a second bar bisecting the first bar, wherein the second bar has a second length extending to opposed second ends that reside intermediate the theoretical equatorial plane and the apex of the dome portion and that are spaced inwardly from the second edge portions of the dome; and
 - iii) wherein the first length of the first bar is greater than the second length of the second bar.